OIPE IAP25 SEP 12 2005 PATENT & TRADEMARK OFFICE

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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/696,853
Filing Date	October 30, 2003
First Named Inventor	Chen
Art Unit	2871
Examiner Name	George Y. Wang
Attorney Docket Number	95121961.207001
Total Number of Pages in This Submission	

ENCLOSURES (*Check all that apply*)

- [x] Fee Transmittal
  - [x] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
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- [ ] CD, Number of CD(s) ______
  - [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [x] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
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- [x] Other Enclosure(s) (please Identify below):

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Remarks

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Printed name	Neil G. Mothew		
Date	September 7, 2005	Reg. No.	54,922

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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 250

Complete if Known	
Application Number	10/696,853
Filing Date	October 30, 2003
First Named Inventor	Chen
Examiner Name	George Y. Wang
Art Unit	2871
Attorney Docket No.	95121961.20700

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METHOD OF PAYMENT (check all that apply)

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES Fee ($)	FILING FEES Small Entity Fee ($)	SEARCH FEES Fee ($)	SEARCH FEES Small Entity Fee ($)	EXAMINATION FEES Fee ($)	EXAMINATION FEES Small Entity Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims ____ - 20 or HP = **Extra Claims** ____ x **Fee ($)** ____ = **Fee Paid ($)** ____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims ____ - 3 or HP = **Extra Claims** ____ x **Fee ($)** ____ = **Fee Paid ($)** ____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims **Fee ($)** ____ **Fee Paid ($)** ____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets ____ - 100 = **Extra Sheets** ____ / 50 = **Number of each additional 50 or fraction thereof** ____ (round up to a whole number) x **Fee ($)** ____ = **Fee Paid ($)** ____

4. OTHER FEE(S) **Fees Paid ($)**

Non-English Specification, $130 fee (no small entity discount) ____

Other (e.g., late filing surcharge): Appeal Brief 250

SUBMITTED BY

Signature	[signature]	Registration No. (Attorney/Agent) 54,922	Telephone 214.978.3077
Name (Print/Type)	Neil G. Mothew		Date September 7, 2005

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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SEP 08 2005
BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant(s):	Chen et al.
Serial No.:	10/696,853
Filed:	Oct. 30, 2003
Priority Date:	Oct. 30, 2002
Title:	Oblique Plate Compensators for Projection Display Systems
Group Art No.	2871
Examiner:	George Y. Wang
Atty. Docket No.:	95121961.207001

CERTIFICATE OF EXPRESS MAIL No. EL964187753US
DATE OF DEPOSIT: September 7, 2005

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APPEAL BRIEF UNDER 37 C.F.R. 41.37

A Notice of Appeal was filed in this case on July 7, 2005. Applicant respectfully appeals from the final rejection mailed April 8, 2005.

09/21/2005 SDENBOB1 00000036 10696853
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I. REAL PARTY IN INTEREST

The real party in interest is Colorlink, Inc., the assignee of the present application by virtue of the assignment recorded at Reel/Frame 014689/0214.

II. RELATED APPEALS AND INTERFERENCES

None.

III. STATUS OF CLAIMS

Claims 1-26, and 60-84 have been finally rejected and are the subject of this appeal. Claims 1-84 were originally filed in present Application. In response to a Restriction Requirement, claims 27-59 were previously withdrawn. Accordingly, claims 1-26 and 60-84 remain pending in the present application and are presented in this appeal. A clean copy of the claims involved in this appeal are reproduced in the Appendix.

IV. STATUS OF AMENDMENTS

No amendments of the claims were submitted after final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates generally to compensators, and more particularly to oblique-plate compensators for liquid crystal projection display systems. In all instances, the scope of the claims shall be considered on their own merits in light of the specification but should not be constrained by the concise explanation of the subject matter defined in each of the independent claims involved in this appeal.

A. Concise explanation of subject matter defined in Claim 1

A compensation scheme is provided that improves azimuth-averaged contrast in a liquid crystal display projection system. Figure 1 of the application, which is reproduced below, helps to illustrate an embodiment of the invention, as defined in Claim 1.

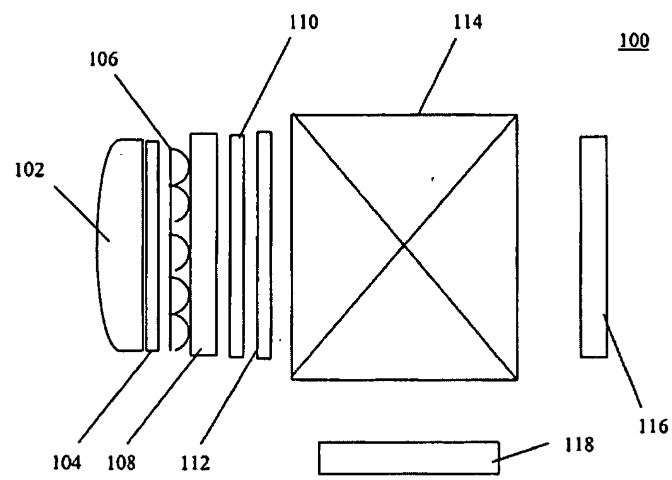

FIG. 1

According to one embodiment, the exemplary projection system 100 includes three image-producing portions [light-producing portions] that produce red, blue and green, or primary color images, or that produce images corresponding to other light spectra. The first image-producing portion includes a light source [light source operable to produce light] 102, a linear polarizer 104, a micro-lens array 106, a liquid crystal panel [first panel, operable to receive light from the light source and to modulate the received light] 108, a compensator [first oblique anisotropic compensation element] 110, and an analyzer 112 that produces a color image that is input into an X-cube [light-directing element] 114. The second image-producing portion 116 and the third image-producing portion 118, which are not shown in detail, have a structure similar to that of the first image producing portion and produce images of different colors for input into the X-cube 114. The three colors of light produced by the image producing

portions are combined by the X-cube 114 and output to a projection lens [operable to project the combined modulated light spectra onto a display surface] that is located at the port of the X-cube 114 without an image-producing portion (not shown).

According to an embodiment, the compensation scheme improves azimuth-averaged contrast and is substantially unconstrained by specific azimuth-dependent contrast requirements that are common in direct view systems. Disclosed compensation schemes preserve the state of polarization for normally incident light while adjusting the state of polarization for off-normal incident rays.

B. Concise explanation of subject matter defined in Claim 60

In addition to some of the subject matter concisely described for claim 1, in some embodiments, relating to claim 60, the oblique compensation element comprises positive-anisotropy, which is configured to change a state of polarization of off-normal incident rays. A specific compensation scheme for a driven twisted liquid crystal mode using positive uniaxial plates is shown in FIG. 6., as described in the specification, page 10, para. 32 & page 13, paras. 39-41.

FIG. 6 of the present application, which is also reproduced below, illustrates this aspect of the invention, showing an exemplary compensation scheme for a projector system including a pair of positive o-plates. The system 400 includes a twisted nematic liquid crystal panel 404 adjacent to a polarizer 402 that is oriented at 45°. A first positive o-plate 406 having an orientation of θ, 45°, a second positive o-plate 408 having an orientation of θ, 135°, and a polarizer 410 orientated at 135°. The twisted nematic liquid crystal panel 404 having a left handed twist. Alternatively, the tilt in the two positive o-plates can be different.

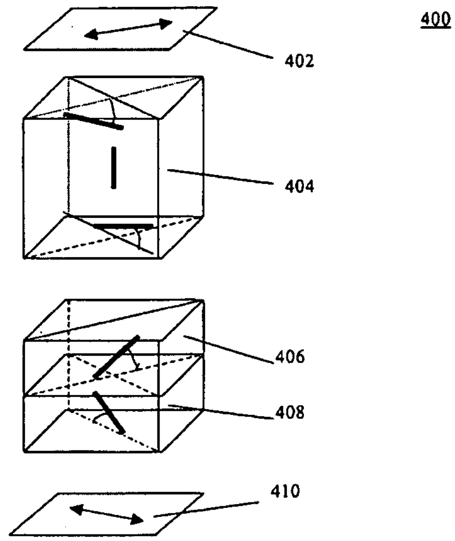

FIG. 6

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1-12, 14-21, 23-26, 60-70, 72-79, and 81-84 (hereinafter "Group A") were rejected under 35 U.S.C. § 103(a), as being unpatentable over Aritake et al. (U.S. Patent No. 6,478,429), in view of Van De Witte et al. (U.S. 5,978,055) and Gilmour et al (U.S. Patent No. 6,122,028).

B. Claims 13 and 71 (hereinafter "Group B") were rejected under 35 U.S.C. § 103(a), as being unpatentable over Aritake, Van De Witte, and Gilmour, in view of Sonehara et al (U.S. 5,105,289).

C. Claims 22 and 80 (hereinafter "Group C") were rejected under 35 U.S.C. § 103(a), as being unpatentable over Aritake, Van De Witte, and Gilmour, in view of Sonehara, in view of Sekiguchi (U.S. 5,798,864).

VII. ARGUMENT

A. The Group A claims, which were rejected under 35 U.S.C. § 103(a), are patentable over the proposed combination of the Aritake, Van De Witte, and Gilmour references.

Group A - Issue: The Group A claims recite a projection system in which an oblique anisotropic compensation element is adjacent to a modulating panel to improve azimuthally averaged contrast. The cited references separately disclose (i) a projection system without any compensation[1]; (ii) a direct view LCD panel with a compensating layer to improve viewing angle[2]; (iii) a compensator in a projection system for compensating chromatic effects.[3] Can the cited references, each failing to improve (or even discuss) azimuthally averaged contrast in a projection system, be combined from their disparate applications to obviate the Group A claims?

Group A - Short Answer: No. First, the hypothetical combination of the references fails to disclose or suggest each and every element of independent claims 1 and 60. Second, there is no motivation to combine the teachings of Aritake, Van De Witte, and Gilmour when none of the cited references recognizes the advantages discussed in the application. And third, when the teachings of these three references have such marked differences, a person of ordinary skill in the art would be led away from the claimed invention and from the combination as proposed by the Examiner.

1. The hypothetical combination of the references fails to disclose or suggest each and every element of independent claim 1.

Independent claims 1 and 60 were rejected as being obvious over Aritake, in view of Van De Witte and Gilmour. With respect to those independent claims, the Examiner conceded that Aritake does not teach oblique anisotropic compensation elements, or for that matter, any compensation elements to address the problem of off-normal incident light in the projector system. 4/8/05 Office Action at 3. Claims 1 and 60 recite a projection system including at least one light producing portion, comprising a light source operable to produce light, a first panel

1 Aritake.
2 Van De Witte.
3 Gilmour.

operable to receive light from the light source and to modulate the received light, and *a first oblique anisotropic compensation element adjacent to the first panel that is operable with the projection lens to provide an* ***azimuthally averaged****, improved contrast image upon the display surface relative to an uncompensated image, wherein the improvement to the image on the display surface is relatively independent of the point of view of an observer.*

To address the deficiencies of Aritake, the Examiner cited Van De Witte and Gilmour as disclosing the elements missing from Aritake. Although Van De Witte refers to a positive anisotropy compensation element for an LCD direct-view display (Van De Witte, col. 2, lines 6-17), there is no teaching or suggestion whatsoever in Van De Witte of applying this type of compensator in the ***projection*** context, as recited in the claims. In fact, Van De Witte appears to relate only to the use of a compensator for a direct-view LCD display.

There are three reasons why Van De Witte does not teach or suggest the use of oblique anisotropic compensation elements in the projection context. First, Van De Witte does not expressly or implicitly teach or suggest the use of compensation elements in the projection context, where light passes through a modulating panel before passing through a lens. Second, Van De Witte's statement that the "tilt angle should preferably not exceed 70 degrees because, otherwise, the retardation foils acquire too much axial symmetry as a function of the ***viewing angle,***" (emphasis added) clearly suggests application in a direct-view system, where viewing angle is an issue in direct view liquid crystal displays. Van De Witte, col. 6, lines 28-31. Third, the conclusion that Van De Witte was concerned with the problem of direct view displays is supported by his academic publication, P. Van De Witte, et al., "Novel Compensation Foils for Active-Matrix TN Displays," *Soc'y for Information Displays Dig. 1997*, at 687-90, as cited in

the IDS. This SID 97 Digest article shows Van De Witte to be completely devoted to the problem of optimizing viewing angle for an Active Matrix Twisted Nematic LCD display (AM-TN LCD). This, however, is not a principle that applies to the projection context, in which it is desired to improve the azimuth-averaged contrast of the projected image. Thus, the projected image would see a uniform improvement in contrast according to this azimuth averaging, whereas the Van De Witte teachings only go to mitigating viewing angle problems in direct-view LCD displays. So, Van De Witte is eliminated as an effective reference by its complete lack of teaching as to the use of compensation elements in the projection context.

The Examiner then cites Gilmour for the proposition that a 'compensation element' can be used in a projection system, even though the compensation element in Gilmore is an entirely different optical component from the claimed invention. Gilmour is alleged to show "an LCD comprising a compensation element (fig. 7, ref. 31) position adjacent to the LC panel (fig. 7, ref. 32) to provide improved azimuth-averaged contrast (col. 1, lines 10-15)." 8/25/04 Office Action at 4. However, Gilmour's teaching only relates to compensation of chromatic effects induced by LCD panels via the use of retarders. Gilmour, col. 6, lines 12-14. Gilmour's retarder components merely modify the plane of polarization of plane-polarized light. *Id.*, col. 2, lines 58-61. Gilmour's compensation elements (retarders) do not relate in any way to the use of ***oblique anisotropic*** compensation elements in projection systems, as recited in the present claims.

Further, the Examiner misstates that "the Gilmour reference clearly indicates that an improved azumuth-averaged contrast (col.1, lines 10-15) improves achromatic performance (col. 1, lines 13-15)." Final Office Action at 10. In fact, that portion of the cited Gilmour reference states that the "individual retarders are combined with different azimuthal orientations

of their optic axes to achieve the improvement in achromatic performance." Gilmour, col. 1, lines 10-15. Gilmour does not teach or suggest azimuthally-averaging contrast, or for that matter, nor does she indicate that an improved azimuth-averaged contrast improves achromatic performance. Gilmore certainly doesn't teach or suggest *a first oblique anisotropic compensation element adjacent to the first panel that is operable with the projection lens to provide an azimuthally averaged, improved contrast image.*

Therefore, even if Aritake, Van De Witte and Gilmour can be properly combined, the hypothetical combination of the references fails to disclose or suggest each and every element of claim 1. A *prima facie* case of obviousness has thus not been established with respect to claims 1 and 60 for at least this reason. *See* MPEP § 2143 (8th ed., Rev. 1) at 2100-125.

2. There is no motivation to combine the teachings of Aritake, Van De Witte, and Gilmour, particularly when none of the cited references recognizes the advantages discussed in the application?

The cited references lack any motivation to combine, because neither cited reference recognizes advantages discussed in the application. *Ex parte Gottling* (B.P.A.I. 2005) (unpublished). Gottling successfully appealed an Examiner's rejection based on his argument that there was no motivation for combining the cited prior art references within the references themselves. The Board held that obviousness cannot be established by combining prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. The mere fact that the prior art may be modified in the manner suggested by an examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *Id.*

In *Gottling*, the Board found that the Examiner had not explained "why a person of ordinary skill in the art would have found it obvious" to combine the references in the manner

proposed by the Examiner." In particular, the Board noted that neither reference specifically recognized the advantages discussed in Gottling's application.

Similar to *Gottling*, there is no motivation to combine the teachings of Aritake, Van De Witte, and Gilmour, as neither reference recognizes the advantages discussed in the present application. Specifically, there is no teaching or suggestion within the respective teachings to improve the azimuthally averaged contrast by using oblique anisotropic compensation elements in a projection context. As stated above, Van De Witte teaches only optimizing viewing angle for a direct-view LCD display. Therefore, Van De Witte would have no need for the projection system of Aritake, as Aritake does not have the viewing angle issues discussed in Van De Witte.

The purported motivation for combination of the Van De Witte reference, stated by the Examiner, is that "one would be motivated to avoid unfavorable alignment," 4/8/05 Office Action at 4. The Examiner goes on to cite Gilmour for the proposition that "the inclusion of a first oblique anisotropic compensation element for an LCD that is azimuthally averaged for improved contrast image would be recognized by one of ordinary skill in the art to improve display performance, bright state efficiency, and optimized switching ability," 4/8/05 Office Action at 4.

These purported motivations for combination fail to address the claimed invention. The motivation cited by the Examiner relating to Van De Witte, appears to relate to a method of manufacturing a compensated LCD having retardation foils on either side of a supporting LCD substrate in order to avoid coupling between the retardation foils, whereby the substrate will separate the layers during the manufacturing process to enhance isolation. Unfavorable alignment in the context of the Van De Witte reference only goes to mitigating viewing angle problems in direct-view LCD displays. This so-called motivation has nothing to do with the

claimed construction of placing an oblique anisotropic compensation element adjacent to a modulating panel in order to improve azimuthally averaged contrast in a projection system.

Similarly, the motivation cited by the Examiner relating to Gilmour, col. 2, line 65 – col. 3, line 27, does not appear to relate to improving azimuthally averaged contrast as claimed in Applicant's projection system. As previously stated, Gilmour does not even discuss azimuthal averaging, let alone the use of an oblique anisotropic compensation element, as recited in the claims.

Because there is no motivation or suggestion to combine Aritake, Van De Witte, and Gilmour, a further requirement of a *prima facie* case of obviousness has not been established. *See* MPEP § 2143 at 2100-124 to 125.

3. When the teachings of Aritake, Van De Witte, and Gilmore have such marked differences, a person of ordinary skill in the art would be led away from the claimed invention and from the proposed combination.

The teachings of Van De Witte would lead a person of ordinary skill in the art away from the claimed invention and from the combination with Aritake as proposed by the Examiner. While Van De Witte does describe oblique plate compensators being used next to LCD panels, Van De Witte is wholly devoted to solving a problem that does not exist in the projection context, which is that of diminishing field-of-view variations due to contrast asymmetries that exist in the direct-view context. Thus, one of ordinary skill in the art who examines Van De Witte would not think to use Van De Witte in the projection context.

Moreover, there is no indication whatsoever in Aritake that it would even be desirable to incorporate compensation elements in a projection system, with the compensation elements described by Van De Witte. In fact, the Examiner cites Gilmour as a third reference for the idea that compensation elements may be used in a projection system, even though neither Gilmour

nor Aritake teach this type of novel compensation element being used in the projection context. Gilmour merely suggests the use of compensation elements to improve achromatic performance. Gilmour's compensation elements are retarder components that modify the plane of polarization of plane-polarized light. Gilmour, col. 2, lines 58-61. So, the hypothetical combination of the three references clearly would teach away from the claimed invention.

The teachings of the references must be considered in their respective contexts to determine whether each reference actually teaches or suggests elements of the claim. The teachings of the references cannot be ignored in an attempt to perform a piecemeal combination of isolated elements, as the Examiner has done. Applicant's arguments are focused on the actual teachings of the references applied in the obviousness rejection. These arguments clearly rebut the piecemeal selection and arbitrary combination of elements, taken wholly out of the context of the teachings of the respective references, in the obviousness rejection asserted in the Office Action. A person of ordinary skill in the art would not pick and choose elements in isolation to combine such elements from multiple references—instead, such a person of ordinary skill would understand the teachings of each reference in their entirety.

For the foregoing reasons, it is respectfully requested that the final rejection of claim Group A be reversed.

B. The Group B claims, which were rejected under 35 U.S.C. § 103(a), are patentable over the proposed combination of the Aritake, Van De Witte, Gilmour, and Sonehara references.

Group B - Issue: The Group B claims recite a projection system in which an oblique anisotropic compensation element is adjacent to a modulating panel to improve azimuthally averaged contrast, and a micro-lens array is adjacent to the modulating panel. The cited references separately disclose (i) a projection system without any compensation[4]; (ii) a direct view LCD panel with a compensating layer to improve viewing angle[5]; (iii) a compensator in a projection system for compensating chromatic effects[6]; (iv) a micro-lens array between a cathode ray tube and a reflection type liquid crystal electro optical device[7]. Can the cited references, each failing to improve (or even discuss) azimuthally averaged contrast in a projection system, be combined from their disparate applications to obviate the Group B claims?

Group B - Short Answer: No. First, the hypothetical combination of the references fails to disclose or suggest each and every element of independent claims 1 and 60, let alone dependent claims 13 and 71. Second, there is no motivation to combine the teachings of Aritake, Van De Witte, Gilmour, and Sonehara when none of the cited references recognizes the advantages discussed in the application. And third, when the teachings of these four references have such marked differences, a person of ordinary skill in the art would be led away from the claimed invention and from the combination as proposed by the Examiner.

Claims 13 and 71 were rejected under 35 U.S.C. § 103(a), as being unpatentable over Aritake, in view of Van De Witte, Gilmour, and Sonehara et al (U.S. 5,105,289). Claim 13 depends from claim 1, and thus is allowable for at least the same reasons as for claim 1. Claim 71 depends from claim 60, and thus is allowable for at least the same reasons as for claim 60. With respect to claims 13 and 71, as noted above, Aritake, Van De Witte, and Gilmour do not disclose all the claimed limitations. Likewise, Sonehara also does not disclose an oblique anisotropic compensation element that is:

> . . . operable with a projection lens to provide an azimuthally averaged, improved contrast image upon a display surface relative to an uncompensated

4 Aritake.
5 Van De Witte.
6 Gilmour.
7 Sonehara.

image where the improvement to the image on the display surface is relatively independent of the point of view of an observer.

Without this required limitation, Aritake, Van De Witte, Gilmour and Sonehara do not disclose each and every limitation recited in claims 13 and 71.

Further, although Sonehara mentions micro-lens arrays, he teaches their use in a completely different projection system to the system recited in the claims. Sonehara teaches the use of a micro-lens array to "couple optically a reflection type liquid crystal electro optical device with the screens of the cathode ray tubes 1507, 1505 and 1509 as picture image supplying means." Sonehara, col. 12, lines 46-50. The claimed invention does not use cathode ray tubes to supply a picture, and is a completely different projection system from that disclosed by Sonehara. So, the combination of Sonehara with the other three cited references, would clearly lead a person of ordinary skill in the art away from the claimed invention, also destroying the motivation to combine, as cited in the 4/8/05 Office Action.

Applicants respectfully request that rejection on this basis be reversed.

C. The Group C claims, which were rejected under 35 U.S.C. § 103(a), are patentable over the proposed combination of the Aritake, Van De Witte, Gilmour, Sonehara, and Sekiguchi references.

<u>Group C - Issue:</u> The Group C claims recite a projection system in which an oblique anisotropic compensation element is adjacent to a modulating panel to improve azimuthally averaged contrast, and a micro-lens array is adjacent to the modulating panel, wherein the compensation element is on the low f-number side of the micro-lens array. The cited references separately disclose (i) a projection system without any compensation[8]; (ii) a direct view LCD panel with a compensating layer to improve viewing angle[9]; (iii) a compensator in a projection system for compensating chromatic effects[10]; (iv) a micro-lens array between a cathode ray tube and a reflection type liquid crystal electro optical device[11]; (v) a projection type image apparatus with a passing reference to f-numbers[12]. Can the cited references, each failing to improve (or even discuss) azimuthally averaged contrast in a projection system, be combined from their disparate applications to obviate the Group C claims?

<u>Group C - Short Answer:</u> No. First, the hypothetical combination of the references fails to disclose or suggest each and every element of independent claims 1 and 60, let alone dependent claims 22 and 80. Second, there is no motivation to combine the teachings of Aritake, Van De Witte, Gilmour, Sonehara, and Sekiguchi when none of the cited references recognizes the advantages discussed in the application. And third, when the teachings of these five references have such marked differences, a person of ordinary skill in the art would be led away from the claimed invention and from the combination as proposed by the Examiner.

Claims 22 and 80 were rejected under 35 U.S.C. § 103(a), as unpatentable over the proposed combination of Aritake, in view of Van De Witte, Gilmour, Sonehara, and Sekiguchi (U.S. 5,798,864). With respect to claims 22 and 80, as noted above, Aritake, Van De Witte, Gilmour, and Sekiguchi do not disclose all the claimed limitations. Likewise, Sekiguchi does not disclose an oblique anisotropic compensation element that is:

> . . . operable with a projection lens to provide an azimuthally averaged, improved contrast image upon a display surface relative to an uncompensated image where the improvement to the image on the display surface is relatively independent of the point of view of an observer.

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8 Aritake.
9 Van De Witte.
10 Gilmour.
11 Sonehara.
12 Sekiguchi.

Without this required limitation, Aritake, Van De Witte, Gilmour and Sekiguchi do not disclose each and every limitation recited in claims 22 and 80. Applicants respectfully request that rejection on this basis be reversed.

CONCLUSION

A check in the amount of $250 is provided with this Appeal Brief filed August 29, 2005. This check includes the fee required for this appeal (small entity) in accordance with 37 C.F.R. § 41.20(b)(2). If this amount is not correct, then the Commissioner is authorized to deduct or credit Deposit Account No. 13-0480, referencing Attorney Docket No. 95121961.207001.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. A projection system comprising:

a plurality of light-producing portions, each of the light-producing portions operable to produce modulated light of certain color spectra;

a light-directing element operable to receive the modulated light spectra from the light-producing portions and to combine those modulated light spectra; and

a projection lens operable to project the combined modulated light spectra onto a display surface;

wherein at least one of the plurality of light-producing portions comprises:

a light source operable to produce light;

a first panel, operable to receive light from the light source and to modulate the received light;

a first oblique anisotropic compensation element adjacent to the first panel, the first oblique anisotropic compensation element being operable with the projection lens to provide an azimuthally averaged, improved contrast image upon the display surface relative to an uncompensated image, wherein the improvement to the image on the display surface is relatively independent of the point of view of an observer.

2. A projection system according to claim 1 wherein the anisotropy of the first oblique compensation element is positive anisotropy.

3. A projection system according to claim 1 wherein the anisotropy of the first oblique compensation element is selected from the group consisting of: positive anisotropy, negative anisotropy, and biaxial anisotropy.

4. A projection system according to claim 1 and further comprising at least a second panel and at least a second oblique anisotropic compensation element adjacent to the second panel, wherein the first and second panels are operable to modulate first and second light spectra, respectively.

5. A projection system according to claim 4 wherein one of the first and second oblique anisotropic compensation elements has positive anisotropy, and the other of the first and second oblique anisotropic compensation elements has negative anisotropy.

6. A projection system according to claim 5 wherein one of the first and second light spectra is blue and the other is red or green, and wherein the oblique anisotropic compensation element having the positive anisotropy is used to change a state of polarization of off-normal incident light in the first light spectrum and wherein the oblique anisotropic compensation element having the negative anisotropy is used to change a state of polarization of off-normal incident light in the second light spectrum.

7. A projection system according to claim 4, wherein at least one of the first and second oblique anisotropic compensation elements are splayed relative to their respective adjacent panels.

8. A projection system according to claim 7, wherein both of the first and second oblique anisotropic compensation elements are splayed and wherein their splays are symmetric to each other.

9. A projection system according to claim 7, wherein both of the first and second oblique anisotropic compensation elements are splayed and wherein their splays are asymmetric to each other.

10. A projection system according to claim 7, wherein both of the first and second oblique anisotropic compensation elements have the same anisotropy.

11. A projection system according to claim 7, wherein both of the first and second oblique anisotropic compensation elements have different anisotropies.

12. A projection system according to claim 7, wherein at least one of the first and second oblique anisotropic compensation elements has biaxial anisotropy.

13. A projection system according to claim 1, further comprising at least one micro-lens array adjacent to the first panel.

14. A projection system according to claim 1, wherein the light-directing element is an X-cube.

15. A projection system according to claim 1, wherein the first oblique anisotropic compensation element is substantially optimized for maximum azimuth-averaged contrast.

16. A projection system according to claim 1, wherein the first panel is a liquid crystal panel.

17. A projection system according to claim 1, wherein the oblique anisotropic compensation element includes a polymeric liquid crystal material.

18. A projection system according to claim 1, wherein the oblique anisotropic compensation element is a multilayer compensation element.

19. A projection system according to claim 1 and further comprising a second oblique anisotropic compensation element adjacent to the first panel.

20. A projection system according to claim 19, wherein the first and second oblique anisotropic compensation elements are on the same side of the first panel.

21. A projection system according to claim 19, wherein the first and second oblique anisotropic compensation elements are on the opposite sides of the first panel.

22. A projection system according to claim 13, wherein the first oblique anisotropic compensation element is on the low f-number side of the at least one micro-lens array.

23. A projection system according to claim 1, wherein the first panel and the first oblique anisotropic compensation element are formed on a common substrate.

24. A projection system according to claim 23, wherein the first panel is the substrate on which the first oblique anisotropic compensation element is formed.

25. A projection system according to claim 1, wherein the first oblique anisotropic compensation element has a tilt angle that ranges from about 0° to about 50°.

26. A projection system according to claim 1, wherein the first oblique anisotropic compensation element is splayed relative to the first panel.

Claims 27 - 59. Withdrawn

60. A projection system comprising:

a plurality of light-producing portions, each of the light-producing portions operable to produce modulated light of certain color spectra;

a light-directing element operable to receive the modulated light spectra from the light-producing portions and to combine those modulated light spectra; and

a projection lens operable to project the combined modulated light spectra onto a display surface;

wherein at least one of the plurality of light-producing portions comprises:

a light source operable to produce light;

a first panel, operable to receive light from the light source and to modulate the received light;

a first oblique anisotropic compensation element adjacent to the first panel, the first oblique anisotropic compensation element being operable with the projection lens to provide an azimuthally averaged, improved contrast image upon the display surface relative to an uncompensated image, wherein the improvement to the image on the display surface is relatively independent of the point of view of an observer, and wherein the first oblique anisotropic compensation element is configured to change a state of polarization of off-normal incident light, and wherein the anisotropy of the first oblique compensation element is positive anisotropy.

61. A projection system according to claim 60 wherein the anisotropy of the first oblique compensation element is selected from the group consisting of: positive anisotropy, negative anisotropy, and biaxial anisotropy.

62. A projection system according to claim 60 and further comprising at least a second panel and at least a second oblique anisotropic compensation element adjacent to the second panel, wherein the first and second panels are operable to modulate first and second light spectra, respectively.

63. A projection system according to claim 62 wherein one of the first and second oblique anisotropic compensation elements has positive anisotropy, and the other of the first and second oblique anisotropic compensation elements has negative anisotropy.

64. A projection system according to claim 63 wherein one of the first and second light spectra is blue and the other is red or green, and wherein the oblique anisotropic compensation element having the positive anisotropy is used to change a state of polarization of off-normal incident light in the first light spectrum and wherein the oblique anisotropic compensation element having the negative anisotropy is used to change a state of polarization of off-normal incident light in the second light spectrum.

65. A projection system according to claim 62, wherein at least one of the first and second oblique anisotropic compensation elements are splayed relative to their respective adjacent panels.

66. A projection system according to claim 65, wherein both of the first and second oblique anisotropic compensation elements are splayed and wherein their splays are symmetric to each other.

67. A projection system according to claim 65, wherein both of the first and second oblique anisotropic compensation elements are splayed and wherein their splays are asymmetric to each other.

68. A projection system according to claim 65, wherein both of the first and second oblique anisotropic compensation elements have the same anisotropy.

69. A projection system according to claim 65, wherein both of the first and second oblique anisotropic compensation elements have different anisotropies.

70. A projection system according to claim 65, wherein at least one of the first and second oblique anisotropic compensation elements has biaxial anisotropy.

71. A projection system according to claim 60, further comprising at least one micro-lens array adjacent to the first panel.

72. A projection system according to claim 60, wherein the light-directing element is an X-cube.

73. A projection system according to claim 60, wherein the first oblique anisotropic compensation element is substantially optimized for maximum azimuth-averaged contrast.

74. A projection system according to claim 60, wherein the first panel is a liquid crystal panel.

75. A projection system according to claim 60, wherein the oblique anisotropic compensation element includes a polymeric liquid crystal material.

76. A projection system according to claim 60, wherein the oblique anisotropic compensation element is a multilayer compensation element.

77. A projection system according to claim 60 and further comprising a second oblique anisotropic compensation element adjacent to the first panel.

78. A projection system according to claim 77, wherein the first and second oblique anisotropic compensation elements are on the same side of the first panel.

79. A projection system according to claim 77, wherein the first and second oblique anisotropic compensation elements are on the opposite sides of the first panel.

80. A projection system according to claim 71, wherein the first oblique anisotropic compensation element is on the low f-number side of the at least one micro-lens array.

81. A projection system according to claim 60, wherein the first panel and the first oblique anisotropic compensation element are formed on a common substrate.

82. A projection system according to claim 81, wherein the first panel is the substrate on which the first oblique anisotropic compensation element is formed.

83. A projection system according to claim 60, wherein the first oblique anisotropic compensation element has a tilt angle that ranges from about 0° to about 50°.

84. A projection system according to claim 60, wherein the first oblique anisotropic compensation element is splayed relative to the first panel.

IX. EVIDENCE APPENDIX

No Evidence Appendix is present in this appeal.

X. RELATED PROCEEDINGS APPENDIX

No Related Proceedings Appendix is present in this appeal.